

Twelve questions on sex linked genes for SL Genetics

1. If red-green colour-blindness is a recessive, X-linked trait caused by a single gene. In marriages between a man who is colour-blind, and a woman who is a carrier, what percentage of the children can be expected to be daughters who do not carry the trait at all?
 - A. 50%
 - B. 75%
 - C. 0%
 - D. 100%

2. If red-green colour-blindness is a recessive, X-linked trait caused by a single gene. In marriages between a man who is colour-blind, and a woman who is a carrier, what percentage of the **male** children can be expected to be sons who do not carry the trait at all?
 - A. 50%
 - B. 75%
 - C. 0%
 - D. 100%

3. In all conditions in which a defective gene is on the X chromosome, transmission of the alleles of the condition to a male child can be:
 - A. from neither his mother nor father
 - B. only from his father
 - C. only from his mother
 - D. either from his father or his mother

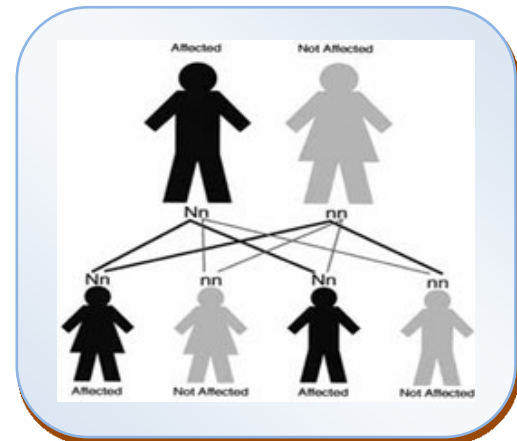
4. If red-green colour-blindness is a recessive, X-linked trait. In marriages between a man who has normal colour vision and a woman who is a carrier, what percentage of the children can be expected to be sons who are colour blind?
 - A. 25%
 - B. 75%
 - C. 0%
 - D. 50%

5. If red-green colour-blindness is a recessive, X-linked trait. In marriages between a man who has normal colour vision, and a woman who is a carrier, what percentage of the ^{female} children can be expected to be daughters who have normal colour vision?
 - A. 0%
 - B. 50% of the female children they have will be expected to have normal vision
 - C. 25%
 - D. 100%

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6. The pedigree diagram on the right shows inheritance within one family group. It shows that the trait in question is:

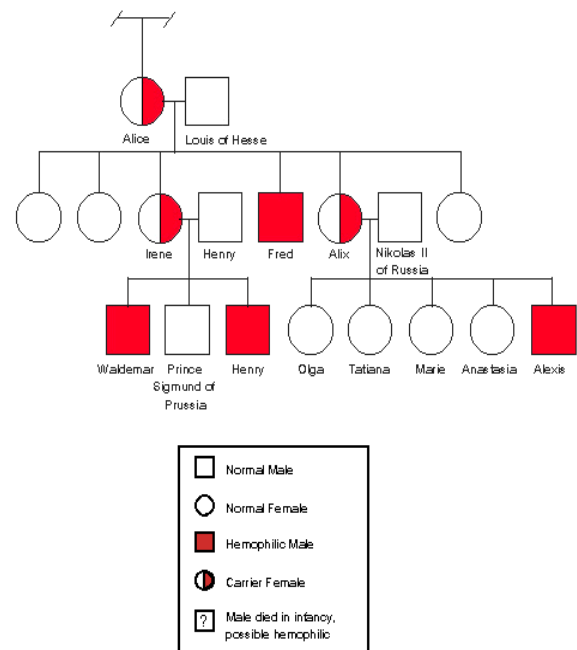
- A. sex-linked dominant
- B. autosomal recessive
- C. sex linked recessive
- D. autosomal dominant



7. The image below is a partial pedigree for the inheritance of hemophilia in the royal families of Europe.

Based upon this pedigree, the allele for hemophilia is most likely to be:

- A. sex-linked & recessive
- B. autosomal & recessive
- C. autosomal & dominant
- D. sex-linked & dominant



8. Which is the best explanation that Prince Sigmund of Prussia did not inherit hemophilia?

- A. he only inherited one hemophilia allele from his mother
- B. he only inherited one hemophilia from his father
- C. he didn't inherit any hemophilia alleles
- D. he inherited two hemophilia alleles

9. Colour-blindness is a recessive, X-linked trait. In marriages between a man who is colour-blind, and a woman who is a carrier, what percentage of the children can be expected to be daughters who are colour-blind?

- A. 100%
- B. 50%
- C. 25%
- D. 0%

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10. Colour-blindness is a sex-linked trait that is uncommon in women because
- A. women have a different gene for colour vision
 - B. the colour-blindness allele is carried by a gene on the Y chromosome
 - C. women have to receive the trait from both parents in order for it to be expressed
 - D. in women the normal allele is dominant to the colour-blindness allele
11. A father is heterozygous for a particular **autosomal dominant trait**. If his spouse is homozygous recessive for the same trait, what percentage of their offspring can be expected to express the dominant condition?
- A. 0% $Tt \times tt$
B. 75% 50% of children have Tt genotype and 50% tt
C. 50%
D. 25%
12. If Colour-blindness is a recessive, X-linked trait. In marriages between a man who is colour-blind, and a woman who is a carrier, what percentage of the children can be expected to be sons who are not colour blind?
- A. 75%
 - B. 25% of all the children
 - C. 100% .
 - D. 50% of the sons